

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) An image processing apparatus for detecting posture, or posture and position of a three-dimensional object, comprising:
 - a plurality of stacked objects, each having identical three-dimensional shapes but different positions and postures
 - an image capturing device;
 - a memory storing a plurality of reference models created based on image data of a reference object captured by said image capturing device in a plurality of angular rotation directions, and storing information of the angular rotation directions respectively associated with said reference models, said reference object being an object of detection or an object having a shape identical to that of the object of detection;
 - a processor to perform matching processing on image data containing an image of the object of detection captured by said image capturing device against said plurality of stored reference models and select an image of an object matched with one of said reference models, and to obtain posture, or posture and position of the object based on the selected image of the object, said one of said reference models and the information of said respective angular rotation directions associated with said one reference model.
2. (Previously Presented) An image processing apparatus according to claim 1, wherein said reference models comprise a part of the image data of the reference object.
3. (Original) An image processing apparatus according to claim 1, wherein said reference models are obtained by processing the image data of the reference object.
4. (Original) An image processing apparatus according to claim 1, wherein said image capturing device comprises a camera for capturing two-dimensional image data.
5. (Original) An image processing apparatus according to claim 4, wherein said image data of the reference object are captured by said image capturing device from a predetermined distance.

6. (Original) An image processing apparatus according to claim 1, wherein said image capturing device comprises a visual sensor for capturing three-dimensional image data.

7. (Previously Presented) An image processing apparatus according to claim 6, wherein said image data containing an image of the object of detection captured by said visual sensor is two-dimensional arrangement data including distance information from the object of detection to the image capturing device, a part of said two-dimensional arrangement data or a set of distance data.

8. (Previously Presented) An image processing apparatus according to claim 1, wherein said image capturing device is attached to a robot.

9. (Previously Presented) An image processing apparatus according to claim 1, wherein said image data of the reference object are captured in a place different from a place where the detection of the object is performed, and supplied to the image processing apparatus on line or off line.

10. (New) An image processing apparatus connected to a robot for detecting a three-dimensional object-of-interest and directing a robot to pick one of the objects-of-interest from a plurality of objects-of-interest, comprising:

an image capturing device operatively connected to the robot;

a memory operatively connected to the image capturing device and the robot;

a processor operatively connected to the memory and the robot;

wherein the image capturing device captures a single three-dimensional reference object in a plurality of angular rotation orientations relative to a pre-set rotation axis, each captured object representing a respective reference model, and forwards position and posture information to define each reference model to the memory,

wherein the memory stores the information regarding each reference model; and

a plurality of objects-of-interest, one of which may be the reference object, each having a shape identical to the reference object, but each having a different position and posture from the remainder of the plurality of objects-of-interest,

wherein said image capturing device captures an image of one of the plurality of objects-

of-interest and forwards position and posture information regarding the object-of-interest to the processor,

wherein the processor performs matching processing between the stored reference models and the position and posture of the captured image of the object-of-interest, and selects one of the reference models whose position and posture corresponds closest to the position and posture of said object-of-interest and instructs the robot to pick the captured object-of-interest from the plurality of objects-of-interest based on the stored information for the selected reference model.